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CURRENT LITERATURE

BOOK REVIEWS

Mendelism

A book by BATESON entitled *Mendel's principles of heredity*¹ has recently appeared from the Cambridge Press. The work is divided into two parts. The first part is a compilation and summary of all Mendelian work to date. The second part contains a biographical sketch of MENDEL and a translation of his two classic papers on hybridization in *Pisum* and *Hieracium*. The latter also appeared in the celebrated *Defense of Mendel*, published by the same author in 1902.

The body of the work is occupied with an account of the facts of Mendelian inheritance, as they have been accumulated since the work of MENDEL was brought to the attention of the scientific world at the beginning of the century; and a considerable proportion of this work is the result of the activities of BATESON and his students. The first three chapters contain the principles of Mendelian theory, as they have been developed and modified. The next five chapters deal with the phenomena of color heredity, indicating the prominent place the study of color characters occupies in Mendelian literature. The phenomena of "gametic coupling" and "spurious allelomorphism" are described and explanations suggested. Other chapters are concerned with heredity and sex; Mendelian inheritance in man; intermediates between varieties; Mendelian conceptions of the nature of units; the nature of segregation, reversion, variation, etc.; and the final chapter of part I is devoted to the practical application of Mendelian principles. The last chapter will prove useful to practical breeders of plants and animals, for even if there is not an *actual* segregation of characters, it is undeniably true that in many cases characters *behave as though* a segregation and recombination according to chance had taken place. There are certain cases, however, in which it is very difficult to suppose that a segregation takes place at the time of chromosome reduction. Such a case is that of two white races of sweet pea, one having long pollen and the other round. In the F_1 of this cross all the hybrids have long pollen, while if a segregation of characters had taken place during reduction, we should expect to find in each tetrad of pollen grains two long and two round.

The general aspects of Mendelian theory are but lightly touched upon in this work, since the author intends to deal with these in a separate volume. The remarks on every page, however, as well as the brief discussion of these topics leave no doubt as to the interpretation placed upon the phenomena described. It

¹ BATESON, W., MENDEL'S principles of heredity. 8vo. pp. xvi + 396. *pls.* 6, colored. *pls.* 3, half-tone portraits of Mendel. *figs.* 37. Cambridge: University Press; New York: G. P. Putnam's Sons. 1909. \$3.50.

is a curious blindness to other facts of heredity which leads the author to the opinion that Mendelism probably represents the only type of inheritance which exists. Because characters sometimes behave as units does not exclude the occurrence of several other types of hereditary behavior, nor does the recognition of this fact belittle the facts of Mendelism. In the comparison of GALTON's law of ancestral inheritance with the Mendelian ratios, the fact that GALTON's law was designed for populations rather than for individuals seems to have been overlooked.

The method by which the process of segregation is visualized is very well exemplified in the following quotation (p. 56):

Henceforth we have to penetrate behind the visible appearance of the individual, and endeavor to reconstruct first those processes of cell division which produced the germ-cells or gametes, distributing the characters or factors among them according to definite systems; and then the subsequent process of union of those gametes, pair by pair, in fertilization to form zygotes, each developing and manifesting in its development those properties of structure, instinct, and conduct conferred upon it by that particular complement of factors which its two original gametes contained.

Yet, fascinating as the theory appears, it must be remembered that it still remains an unproven hypothesis, to explain a characteristic method of hereditary behavior. The hypothesis has certainly proved useful, even though another explanation of the phenomena of segregation may ultimately be found necessary.

The book is attractively printed on a good quality of smooth paper, and appears to be exceptionally free from typographical errors. Its attractiveness is enhanced by three photographs of MENDEL and several colored plates, together with numerous illustrations and diagrams. A bibliography, and subject and author indices are found at the end of the volume. The work will be indispensable for reference by all students of heredity as a compendium of Mendelian phenomena.

A small volume entitled *Mendelism*, by R. C. PUNNETT, a collaborator with BATESON, was published in 1905 and passed through a second edition. An American edition² has just appeared, with a preface by GAYLORD WILSHIRE. It is a simple, clear account of Mendelian phenomena, and as such has doubtless done much to popularize Mendelism among general readers. The new edition also contains reprints of an article on "Applied heredity," which appeared in *Harper's Monthly Magazine*, and an article subtitled "Old Bottles," reprinted from *The New Quarterly*, which is chiefly a criticism of THOMSON's volume on *Heredity*,³ of the position taken by WALLACE and POULTON, and the attempt to minimize the importance of non-Mendelian types of inheritance. The paper is poor and the diagrams coarse, but the little book will doubtless serve its purpose as a cheap and popular presentation of Mendelism.—R. R. GATES.

² PUNNETT, R. C., *Mendelism*. 12mo. pp. 109. New York: Wilshire Book Company, 200 William St. 1909. 50 cents.

³ THOMSON, J. ARTHUR, *Heredity*. London. 1908.